

Genesis 500

Instruction Manual

MONSTER CABLE®

Sound of The Alpha® Genesis 500™

Thank you for choosing the Alpha Genesis 500 as your reference cartridge. The extraordinary reproduction capabilities of the Genesis 500, especially in the areas of space, ambience, and depth re-creation, are revolutionary. The new design technology incorporated in the Genesis 500 represents a new level of achievement in the playback of analog recordings.

Merits of the Alpha Genesis 500 Cartridge

by Hisayoshi Nakatsuka

My twenty years of cartridge design experience have led me to the discovery of the most influential factors in the sound of cartridges, and how to optimize for them. I will try to explain to you—in easy to understand examples—why cartridge design has become a delicate combination of art and technology.

If we closely examine the face of a color television tube, we find dots of the three primary colors—red, blue and green—laid out in an intricate pattern. By mixing different amounts of these three colors it is possible to reproduce the entire range of colors in the visible spectrum. We perceive the result of such a combination as a clear picture of various distinct and separate colors.

Likewise with sound. Sounds produced by a combination of various musical instruments and voices are combined together in the recording process to produce a single set of (separate left and right) electrical outputs. When this combination of electrical signals is played back through an audio system, we can easily distinguish individual instruments and voices within the total sound, and any variation of that sound. Our ears are as sensitive to any shifts in the components of sound (frequency, amplitude and time) as the eye would be sensitive to any shifts in color.

Most audiophiles know that cartridges very closely matched in frequency response and distortion levels sound quite different. In fact, these criteria have very little relation to what one actually hears in a cartridge. The same holds for other audio components such as speakers, amplifiers, and connecting cables. This phenomenon occurs because measurements are usually made in the frequency domain only—ignoring

distortions due to time and phase. Accurate conversion of the frequency, amplitude, and time components contained in a record groove is critical to the reproduction of musical signals made up, as in a spectrum of thousands of varied bright and dull colors, of complex combinations of sounds.

Time Domain Information

Presently, all conventionally designed cartridge contain distortions in the time domain, not only within the signal itself, but between the left and right channels! These are caused by an inherent imbalanced geometry between the left and right channel coil windings. While it is not noticeable in steady state frequency response measurements, it is noticeable in the reproduction of complex music signals.

Phase—Perfect Sound

In order to eliminate the causes of “time distortion”, it is necessary to design for both mechanical and electrical considerations. In the Alpha Genesis 500, I have defined my 14 design criteria which eliminate “time domain distortion” in the signal and reproduce a sound that is authentic to the original recording in both channels.

The fourteen design points for a phase—perfect moving coil cartridge are:

1. Magnetic pole direction.
2. Coil winding method.
3. Coil winding direction.
4. Prevention of dynamic induced current in

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the magnetic circuit.

5. Prevention of dynamic induced current in the coil bobbin.
6. Method of preventing dynamic induced current.
7. Grounding of coil bobbin.
8. Grounding of yokes.
9. Grounding of magnet.
10. Position of output terminals.
11. Case material (metallic or non-metallic).
12. Grounding of case.
13. Electrical connection between cartridge case and headshell.
14. Direction of wire drawing.

These are the methods I have used to address these considerations:

Coil Winding Method

Let's consider the coil winding method, item 2. The method normally used is shown in figure 1. It is mechanically symmetrical around a vertical axis,

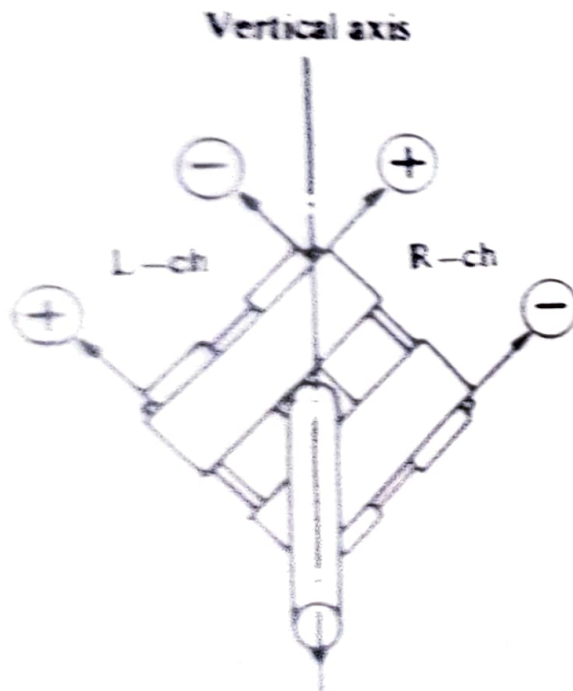


Fig. 1 Conventional coils

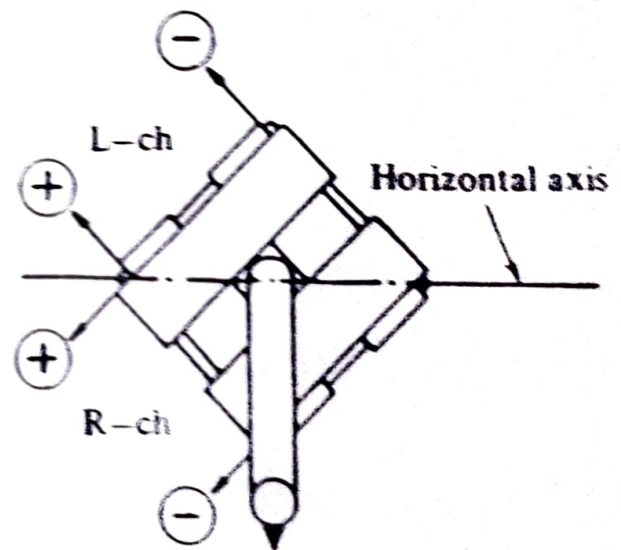
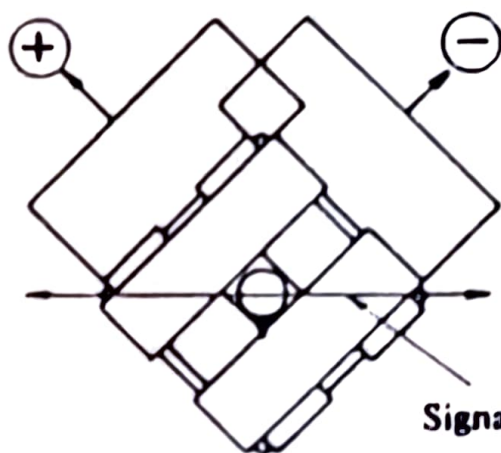
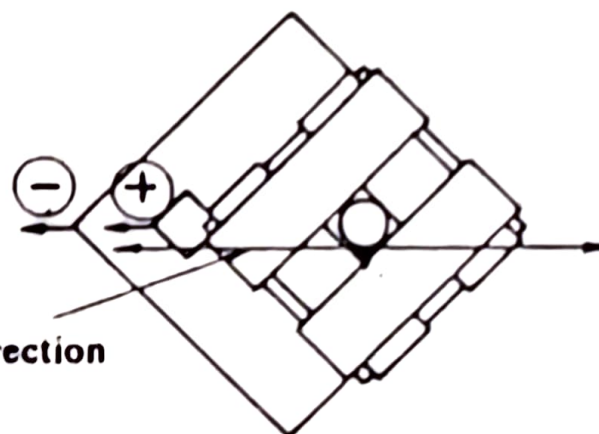


Fig. 2 Genesis series coils



Monaural connection
Fig. 3 of conventional coils



Monaural connection
Fig. 4 of Genesis series coils

but electrically it is asymmetrical because a vertical movement produces left and right channel signals that are in anti-phase. The method used in the Alpha Genesis 500 is shown in figure 2. It is far superior.

The winding is electrically symmetrical around the horizontal axis, with the signals in phase with each other. This symmetry is more easily understood if we consider how the two methods of winding would be connected for monaural. Conventional and Alpha Genesis coils are shown monaurally connected in figures 3 and 4, respectively. Note that in the Alpha Genesis coil, the wires do not cross over each other, thus avoiding coupling effects.

Advanced Mechanical Parts

1. Pure Damper Material

For the Alpha Genesis generator system to work properly, the damper material incorporated must be absolutely pure, with no powder filler. The normal practice is to add several types of filler to control the sound balance. The use of such damper materials in a cartridge causes a kind of "rustling or clattering distortion" during playback.

2. Air Response Damper Mechanism

Individual damper units are used in the Alpha Genesis so that restoration forces acting in one plane are not coupled to the other plane. This gives the cartridge an extremely fast response and its characteristic clear sound and precise image.

3. Powerful Magnetic Material

By using an extremely powerful magnetic material, it is possible to greatly reduce the size and weight of the magnetic circuit, thereby minimizing their effects on the tone arm.

4. Pure Copper Wire Generator Coils

The Alpha Genesis 500 uses copper of very high purity, with advanced drawing techniques that help achieve an even sound balance across the audible range.

5. Double Structure Body.

By combining metals and plastic in the construction of the body, any resonance is isolated from influencing the generator system. An additional

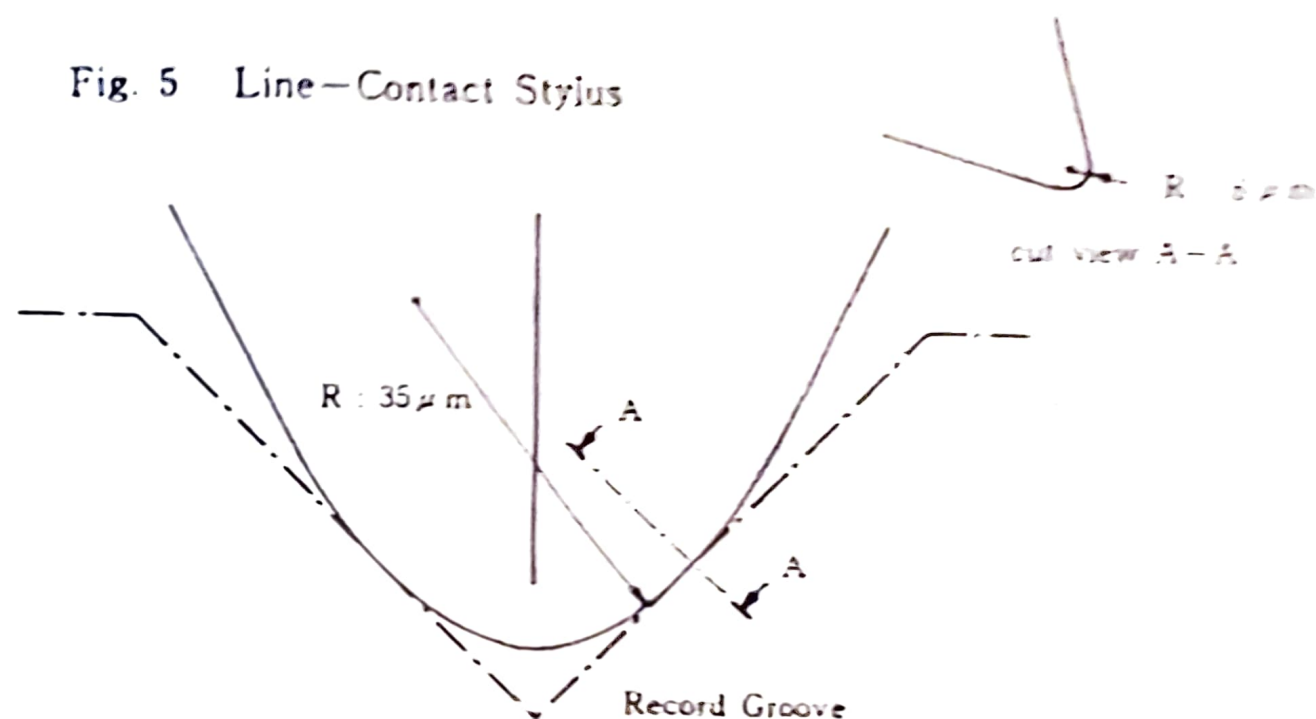
advantage is that this method of construction is both light and rigid. The double—structure design of the cartridge body also prevents external disturbances from influencing the generator system, and keeps eddy currents in the case from effecting the generator output signal.

6. Line—Contact Diamond Stylus

The stylus in the Alpha Genesis 500 is one of the smallest ever developed ($6\ \mu\text{m} \times 35\ \mu\text{m}$). The stylus design has the edges of the diamond shank set parallel to the sides of the cantilever. With this design, the hardest axis of the crystal is aligned to act as the contact point with the record groove. This gives stable and smooth tracing, and produces a very refined sound. The AG 500 can playback any record in any condition, but is especially well—suited for used records. Additio-

nally, the stylus has an exceptionally long life. I estimate the life of this stylus to be in excess of 600 hours.

Fig. 5 Line-Contact Stylus



7. Crystal Sapphire Cantilever

The Alpha Genesis 500 utilizes a thin yet rigid cantilever design of clear mono-crystal sapphire.

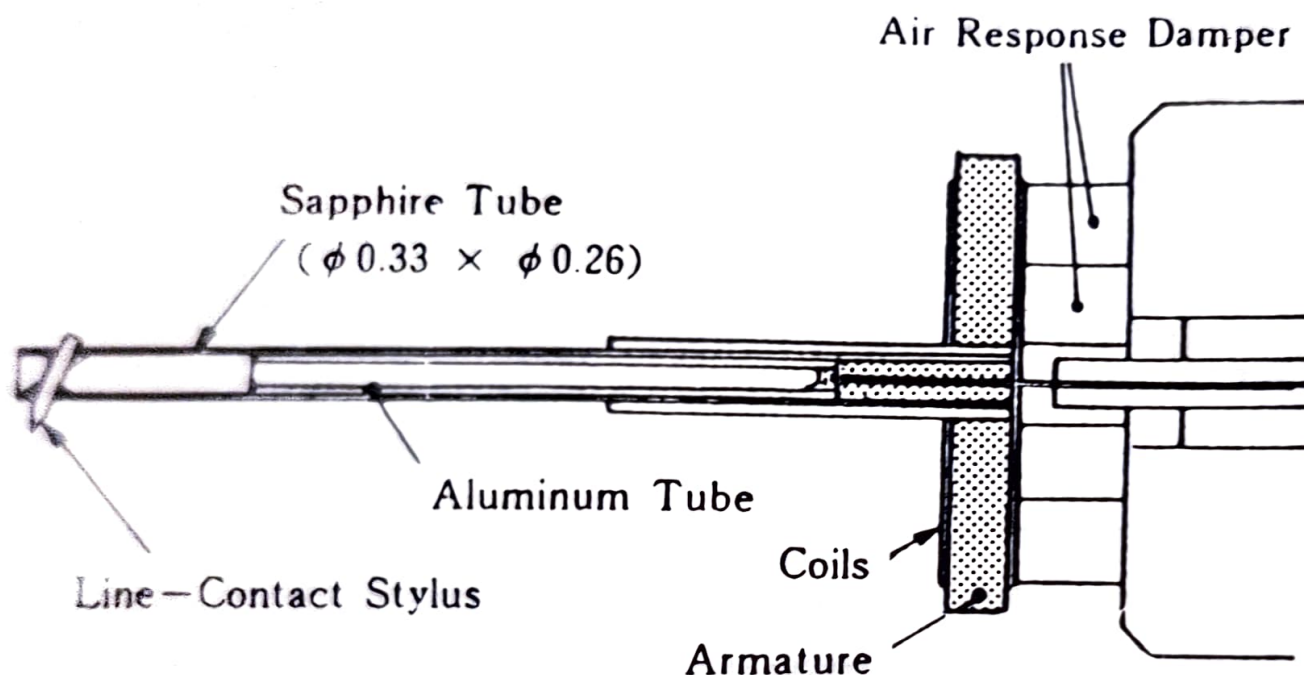


Fig. 6 Crystal Sapphire Cantilever

An additional aluminum inner tube is tightly attached to the inner surface of the sapphire tube for extra rigidity. This creates a cantilever of low mass and superior dampening which allows the Alpha Genesis to track and respond to the most dynamic passages with great accuracy and extre-

mely low resonances.

The Alpha Genesis 500 will give you greater enjoyment from your records by revealing hitherto unnoticed aspects of the music. In this age of digital, music reproduction from analog records is sometimes overshadowed. With the Alpha Genesis 500, I hope to provide you with an instrument which will allow you to enjoy superb state-of-the-art analog music reproduction that can't be matched even by the very finest digital equipment.

Hisayoshi Nakatsuka

Mounting Instructions

Removing the Stylus Guard

The Alpha Genesis Series uses a newly designed stylus guard that clamps the cartridge body. Remove with extreme caution by "squeezing" the sides of the guard with your fingers and removing. Needless to say, replacing the stylus guard should be done with equal caution. Accidental breakage is not covered by your warranty.

Mounting and Handling

Like all phono cartridges, the Genesis 500 is a fragile instrument. The stylus—cantilever assembly should never be handled. The stylus guard should remain in place during the mounting operation.

Mount the cartridge in the headshell using the enclosed set-screws and allen key. Do not fully tighten the screws because you have yet to adjust its overhang. Attach the colored headshell wires to the cartridge pins, matching the wire colors to the color key of the cartridge pins (R : red, RG : green, L : white, LG : blue) using needle-nose pliers or heavyduty tweezers. After overhang alignment is done with an alignment protractor that comes with your tone arm or turntable, torque down the headshell screws so that the body is firmly seated against the headshell. Do not overtighten.

Please note that you should never connect test equipment to the output pins of the cartridge as DC current will magnetize the coil bobbin, which will result in a degradation of the sound.

Setting Vertical Tracking Angle (VTA)

The vertical tracking angle of a cartridge is the angle that is formed between the surface of the record and a straight line drawn from the stylus tip on the record to the cantilever pivot point inside the cartridge body. The most simple and effective method of VTA calibration is to try out a series of different settings while playing music through the system. The material used should display good imaging characteristics and well-defined soundstage. Simple two-microphone recordings, especially ones of pianos, work quite well, as do percussive recordings with rich harmonic content, and very clean violin recordings. When the VTA is properly set, the soundstage will be wide and full. Individual instruments will sound rich with full harmonic content. Lowering the tonearm, thus decreasing the VTA, will cause a

hole to appear in the middle of the soundstage. Instruments will not be completely focused in either image or clarity. Raising the tonearm height, thereby raising the VTA, will narrow the soundstage and add a harshness or brightness to the sound.

VTA can be measured with a protractor, but it is easier to start the adjustment procedure by "eyeballing" the position of the tonearm, getting it

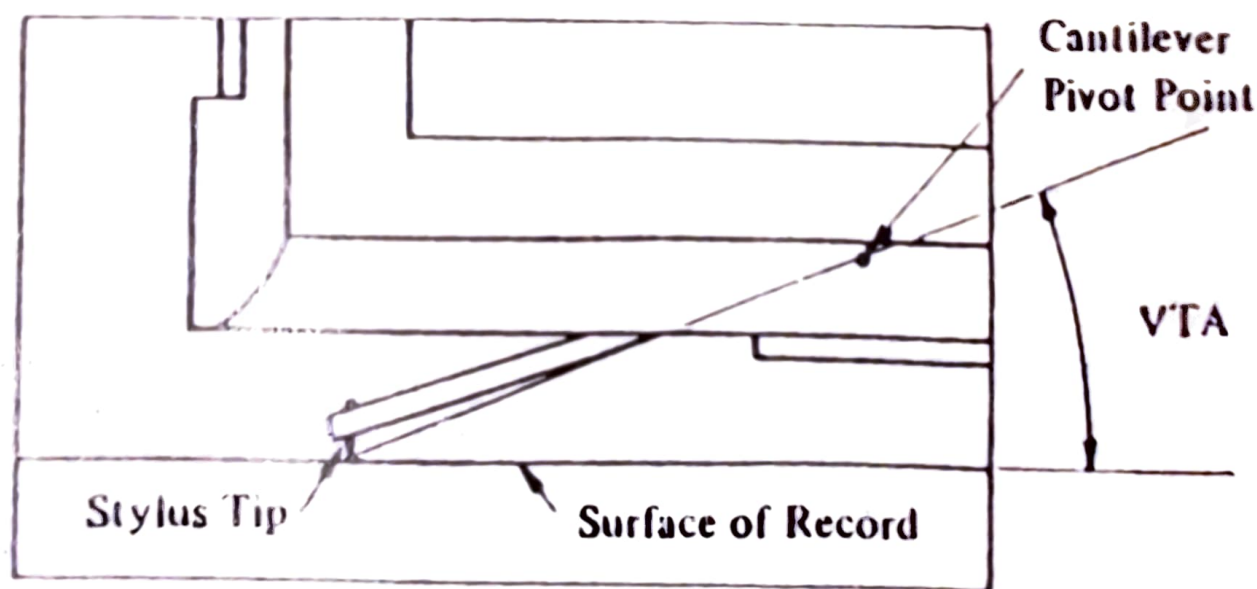


Fig. 7 Setting Vertical Tracking Angle (VTA)

parallel to the record surface. Listen carefully to get a fix on the image and then raise or lower the arm heights by small increments using the guidelines mentioned above, until both the sound-stage and sonic characteristics sound correct.

Break-in

Like any electro-mechanical device, your Alpha Genesis requires a bit of break-in. During this breaking-in, the sound will become "mellow" and more focused, without sacrificing speed or sonic accuracy. After about ten hours of use, re-adjust the VTA for optimum system performance. At this point, the cartridge is completely broken in and requires no care other than regular stylus cleaning. We recommend regular use of a moving coil cartridge demagnetizer such as Sumiko's Fluxbuster FB-1.

Alpha Genesis 500 Specifications

OUTPUT VOLTAGE:	0.2mV (3.54cm/s, 1kHz)
FREQUENCY RESPONSE:	10Hz – 55kHz
±1dB:	20Hz – 20kHz
CHANNEL SEPARATION:	>30dB (1kHz)
CHANNEL BALANCE:	<0.5dB (1kHz)
RECOMMENDED TRACKING FORCE:	1.8gm.
TRACKING FORCE RANGE:	1.5gm. – 2.2gm.
COMPLIANCE, Horizontal:	15×10^{-6} cm/dyne
Vertical:	12×10^{-6} cm/dyne
TRACKABILITY:	>80 μ m/1.8gm(300Hz)
INTERNAL IMPEDANCE:	4 Ohms
RECOMMENDED LOAD:	>80 Ohms
NET WEIGHT:	4.2gm.

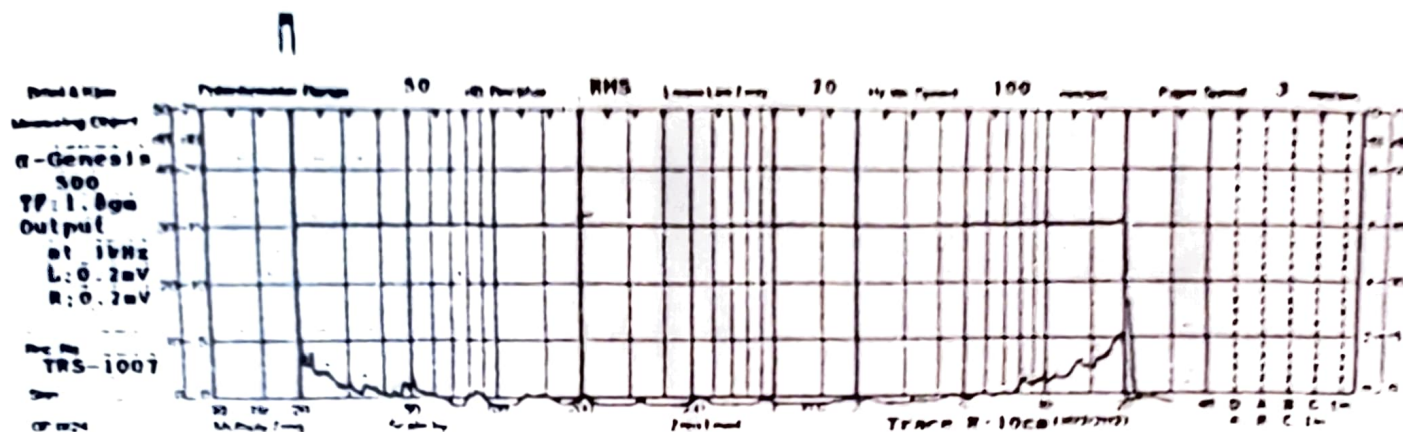


Fig. 8 Frequency Response of Alpha Genesis 500

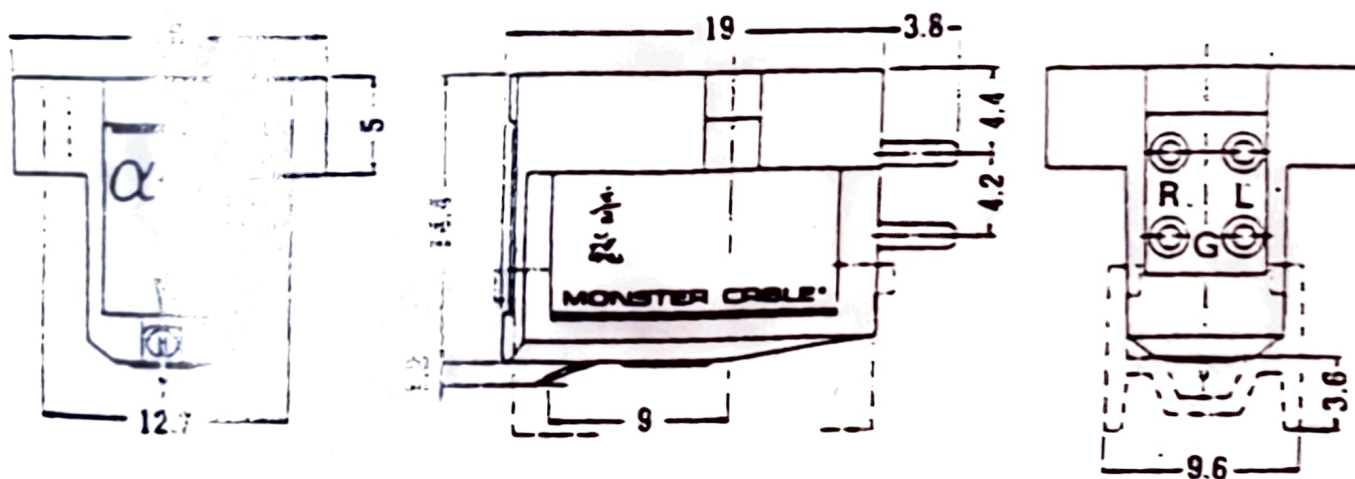


Fig. 9 External Dimensions

alpha series

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